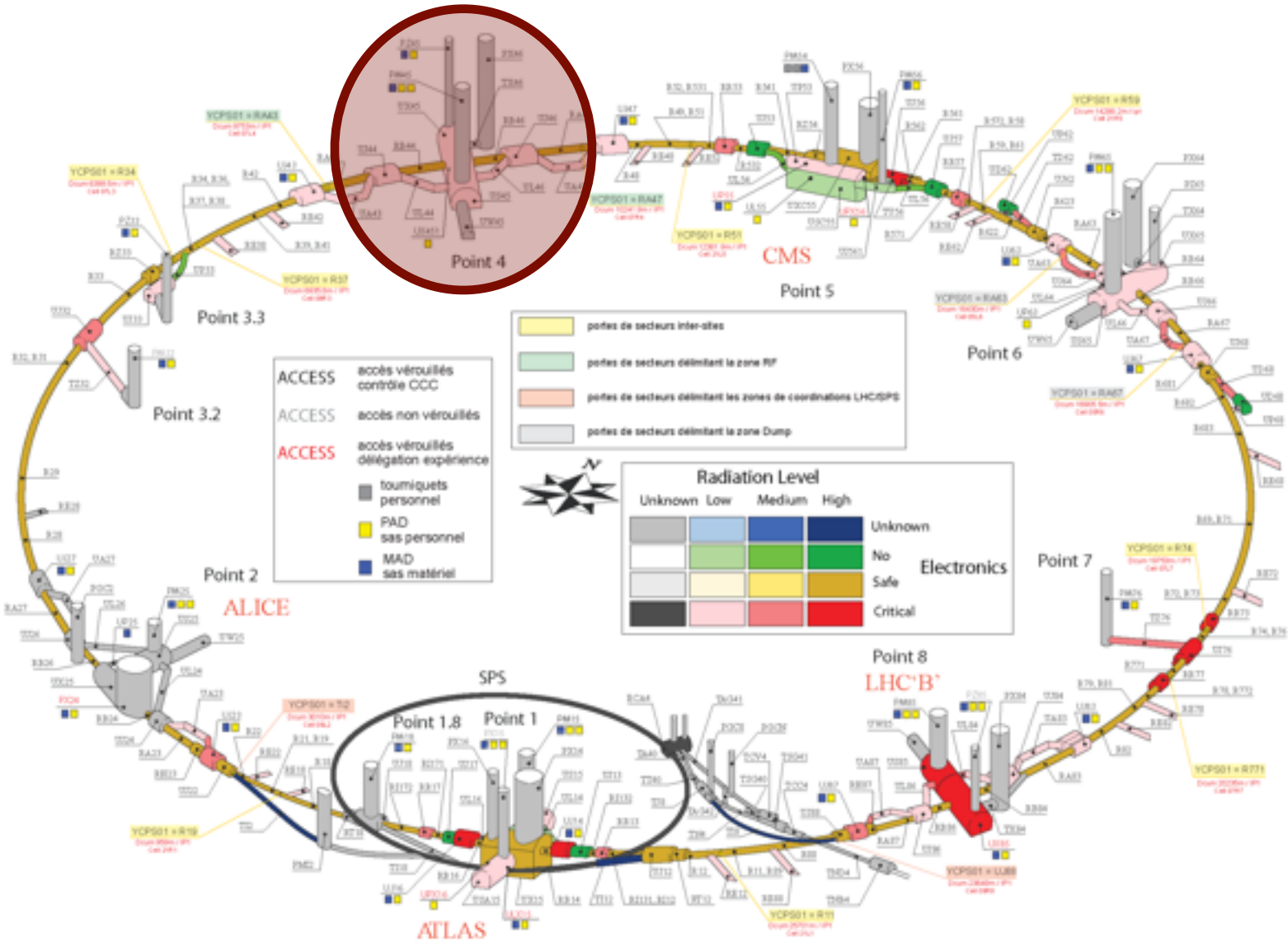
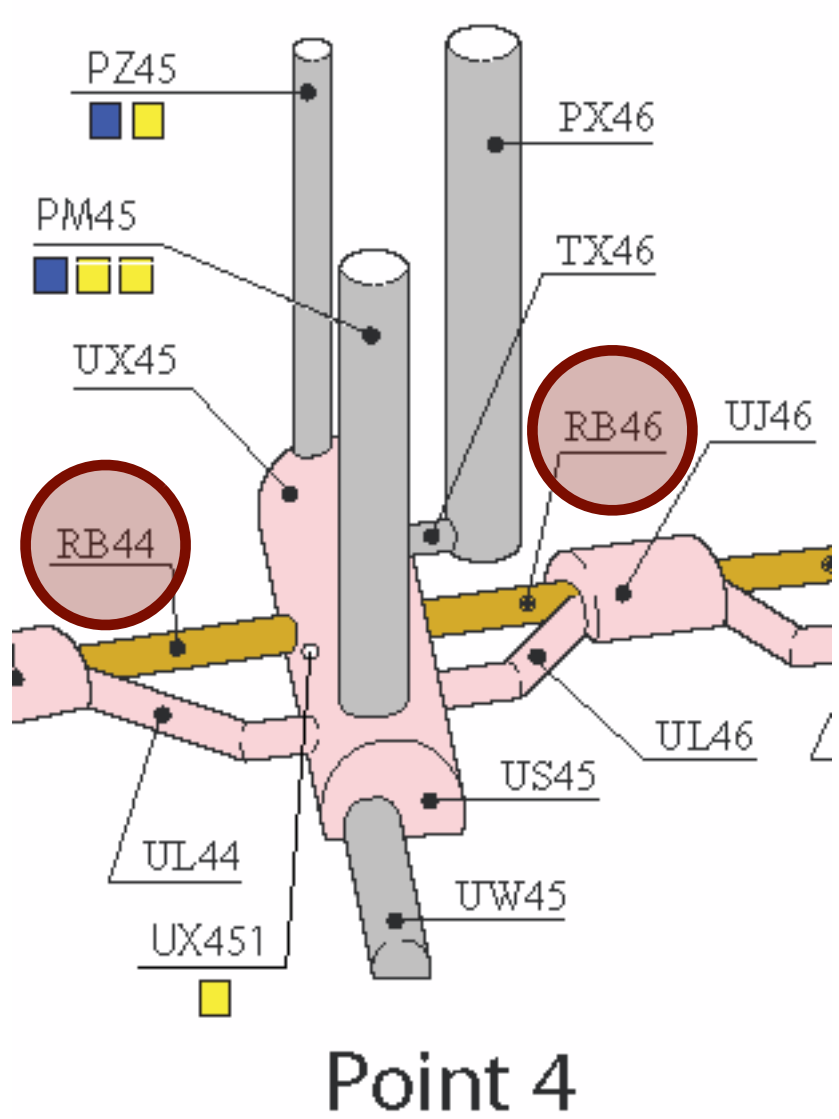
# A possible location for the hollow electron lens at CERN: the RB 44 and RB 46 sections near IR4 in the LHC

*Photographs taken during the tunnel access of 10 November 2011 with E. Bravin, V. Previtali, A. Rossi, and G. Stancari*

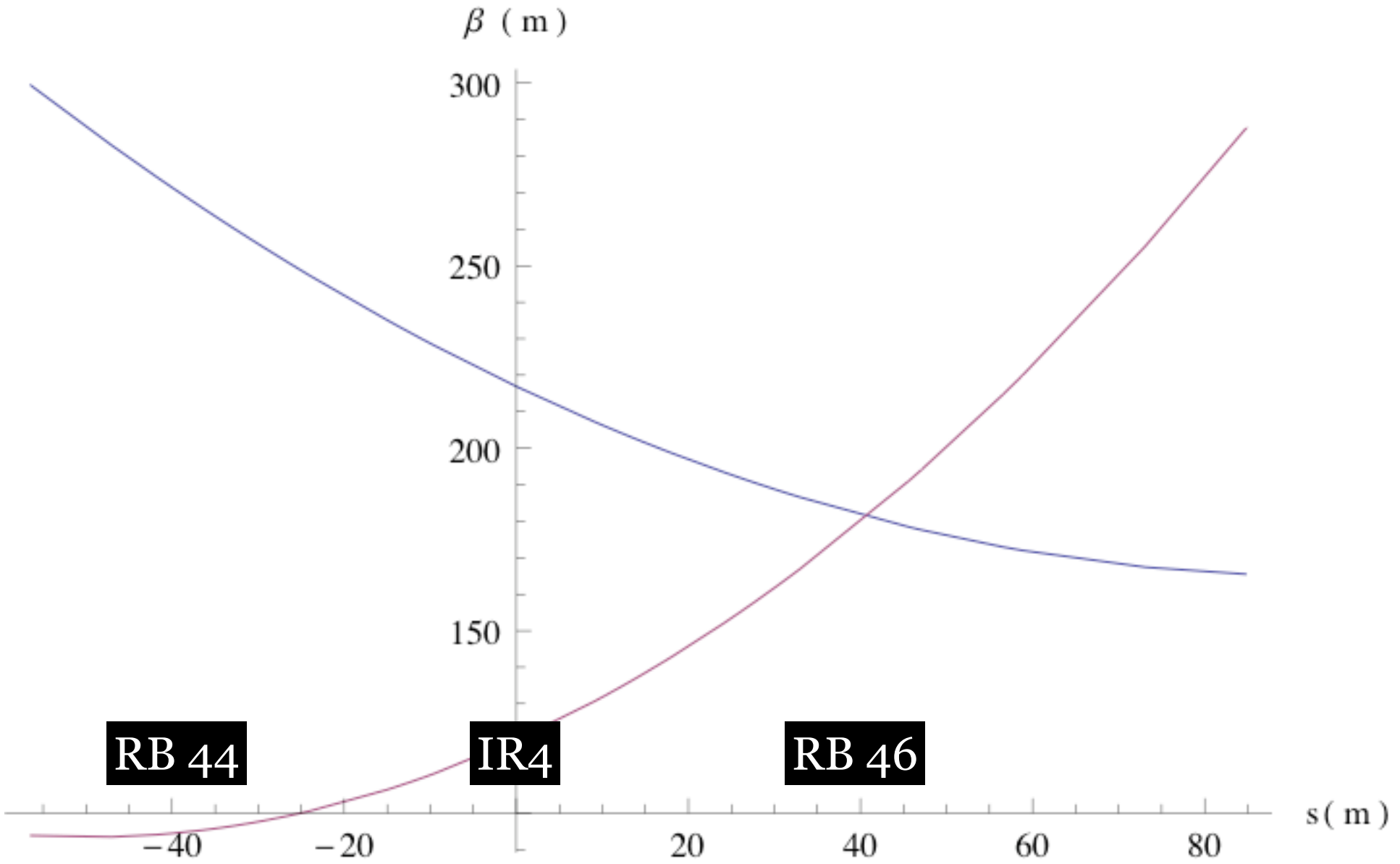
# LHC layout


Point 4
CMS
Point 5
Point 6
Point 7
Point 8
LHC'B'
Point 3.3
Point 3.2
Point 2
ALICE
Point 1.8
Point 1
SPS
ATLAS
ACCESS
accès vérouillés contrôle CCC
ACCESS
accès non vérouillés
ACCESS
accès vérouillés délégation expérience
tourniquets personnel
PAD sas personnel
MAD sas matériel
portes de secteurs inter-sites
portes de secteurs délimitant la zone RF
portes de secteurs délimitant les zones de coordinations LHC/SPS
portes de secteurs délimitant la zone Dump
Radiation Level
Unknown Low Medium High
Unknown
No
Safe
Critical
Electronics

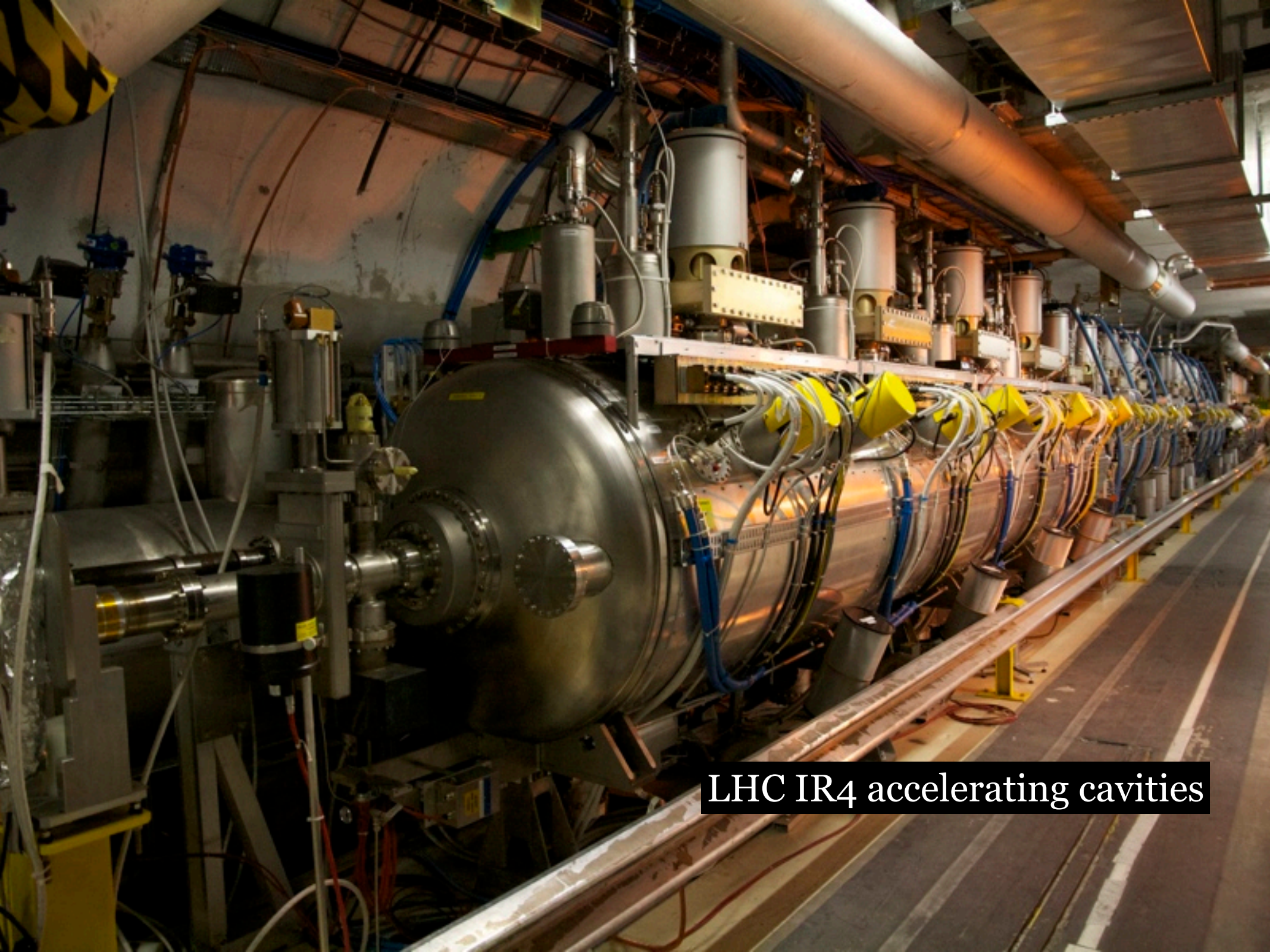
# LHC IR4 detail



# IR4 beam optics v6.503




access point
YCA01
=
UX451
RADIATION
ZONE
SURVEILLÉE
SUPERVISED
AREA
YYACS01 =UX451
CLOSED
FERMÉ
TEST
TEST
RESTREINT
PATROUILLE
GÉNÉRAL

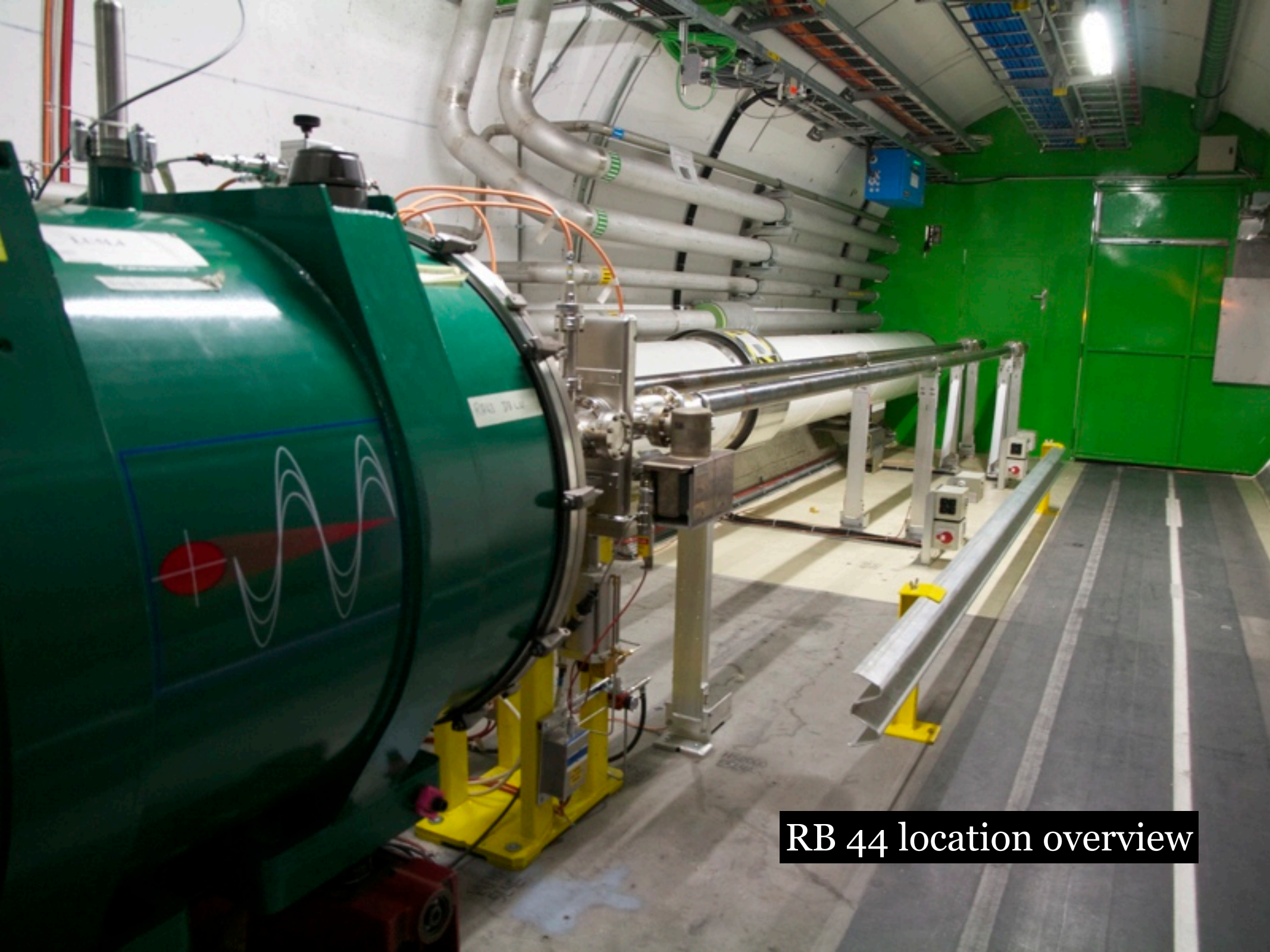


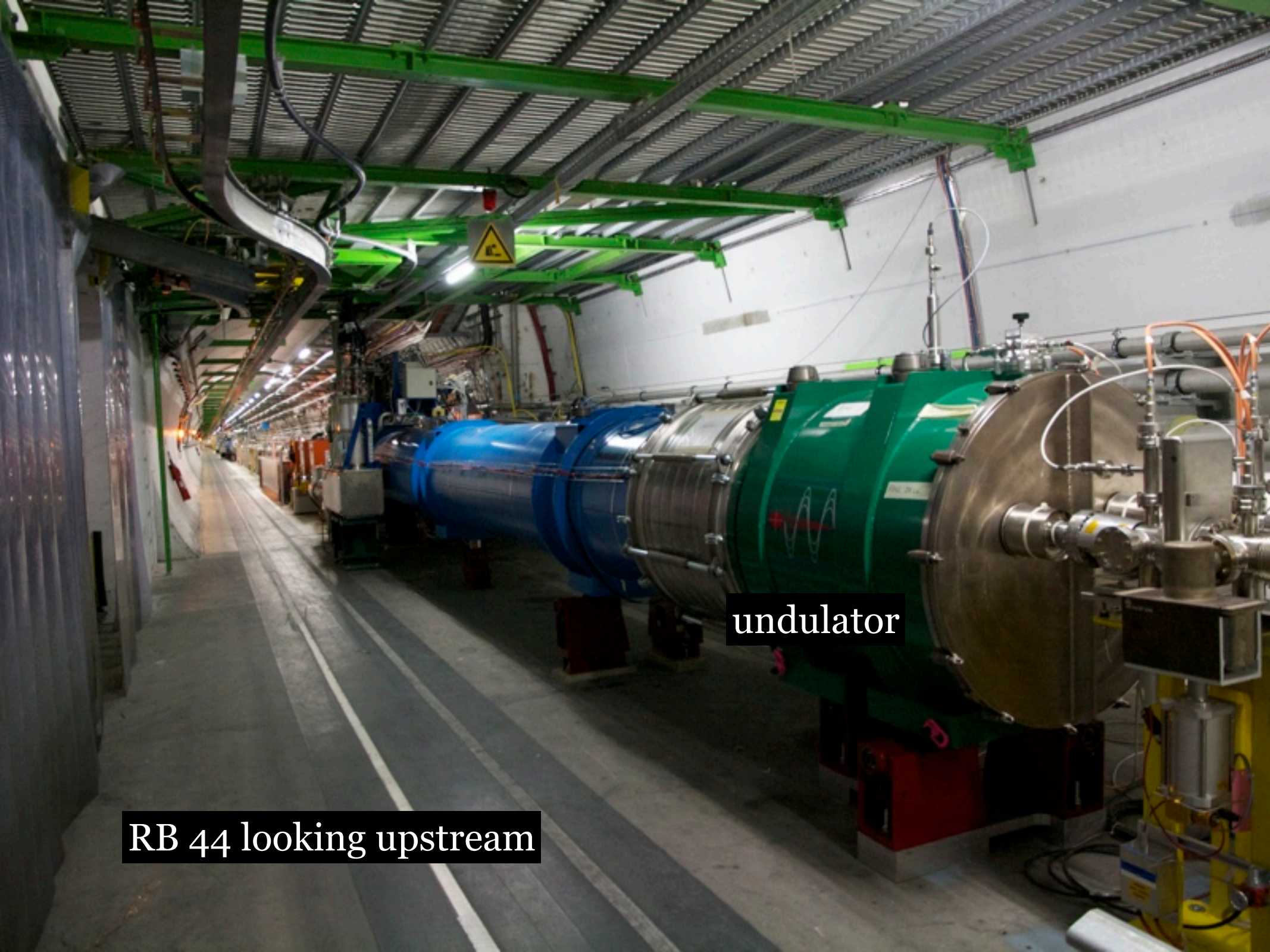
LHC IR4 accelerating cavities


Beam 1 on inner side at IR4


Legacy LEP definitions
$e^-$,
St GENIS
$e^+$,
GEX


RB 44 location, ~40 m left/upstream of IR4

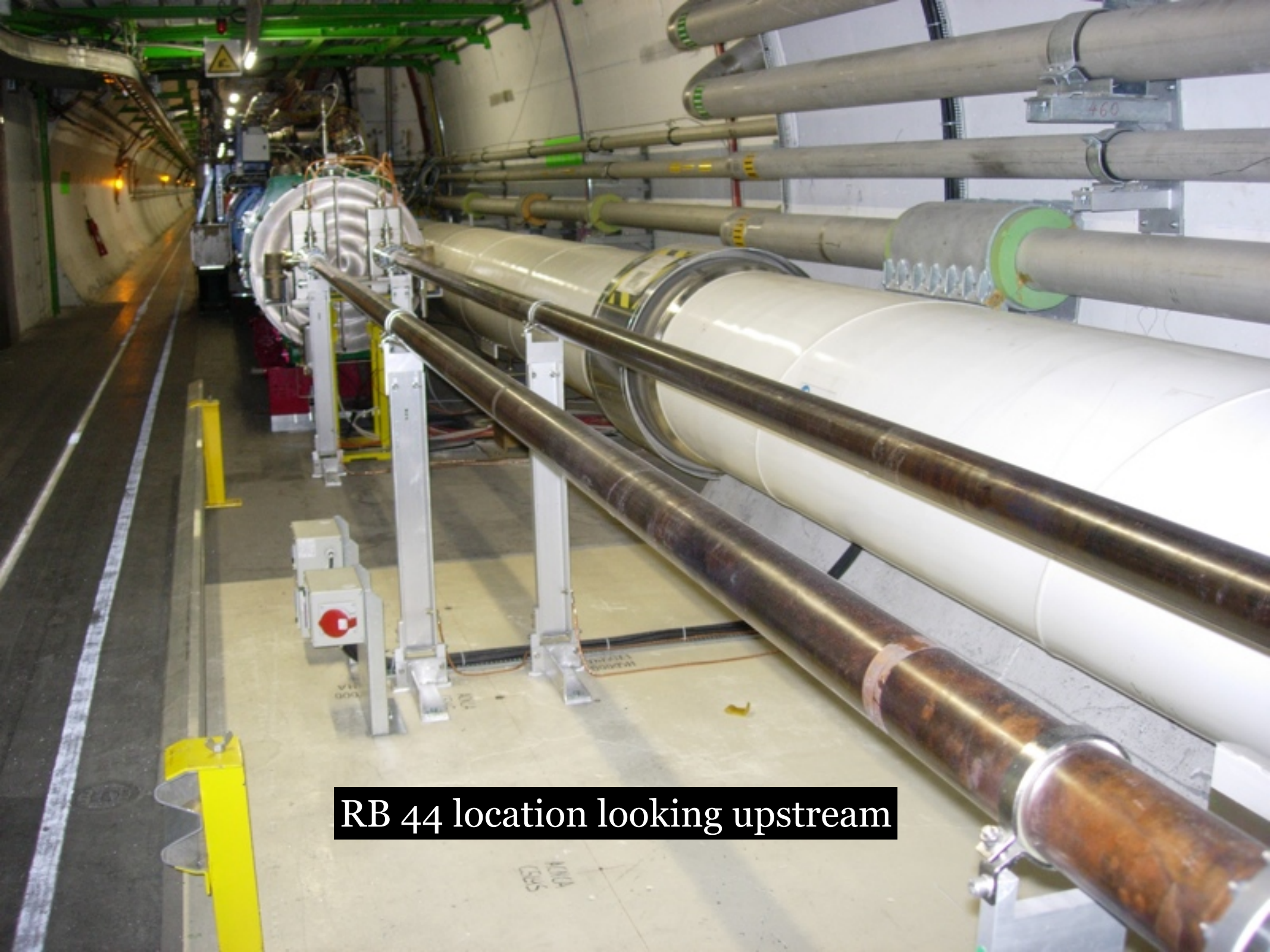

RB 44 location overview


undulator
RB 44 looking upstream

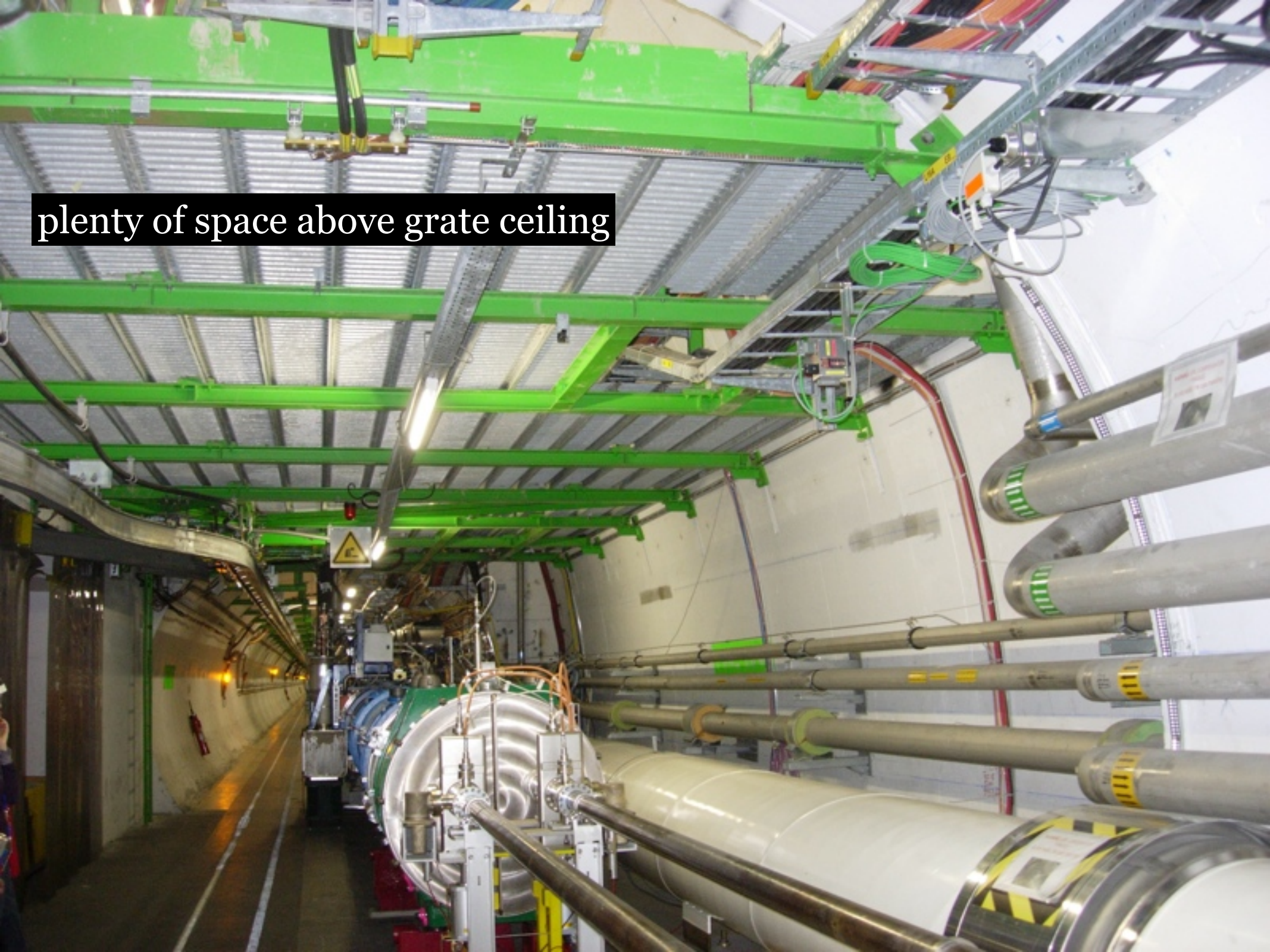

RB 44 looking downstream


closest magnet to rf cavities at RB 44

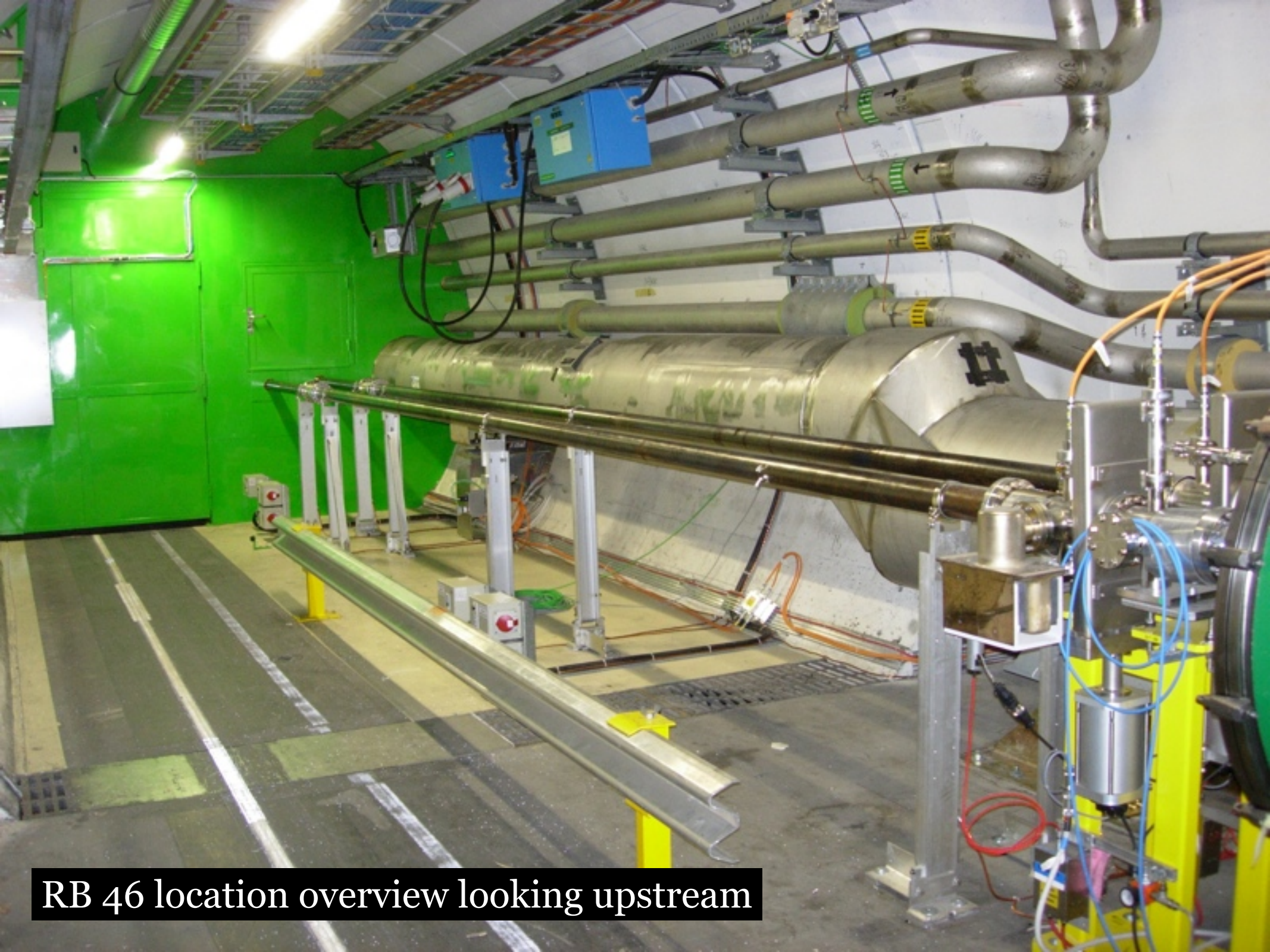
RB 44 location looking upstream


RB 44 location looking upstream

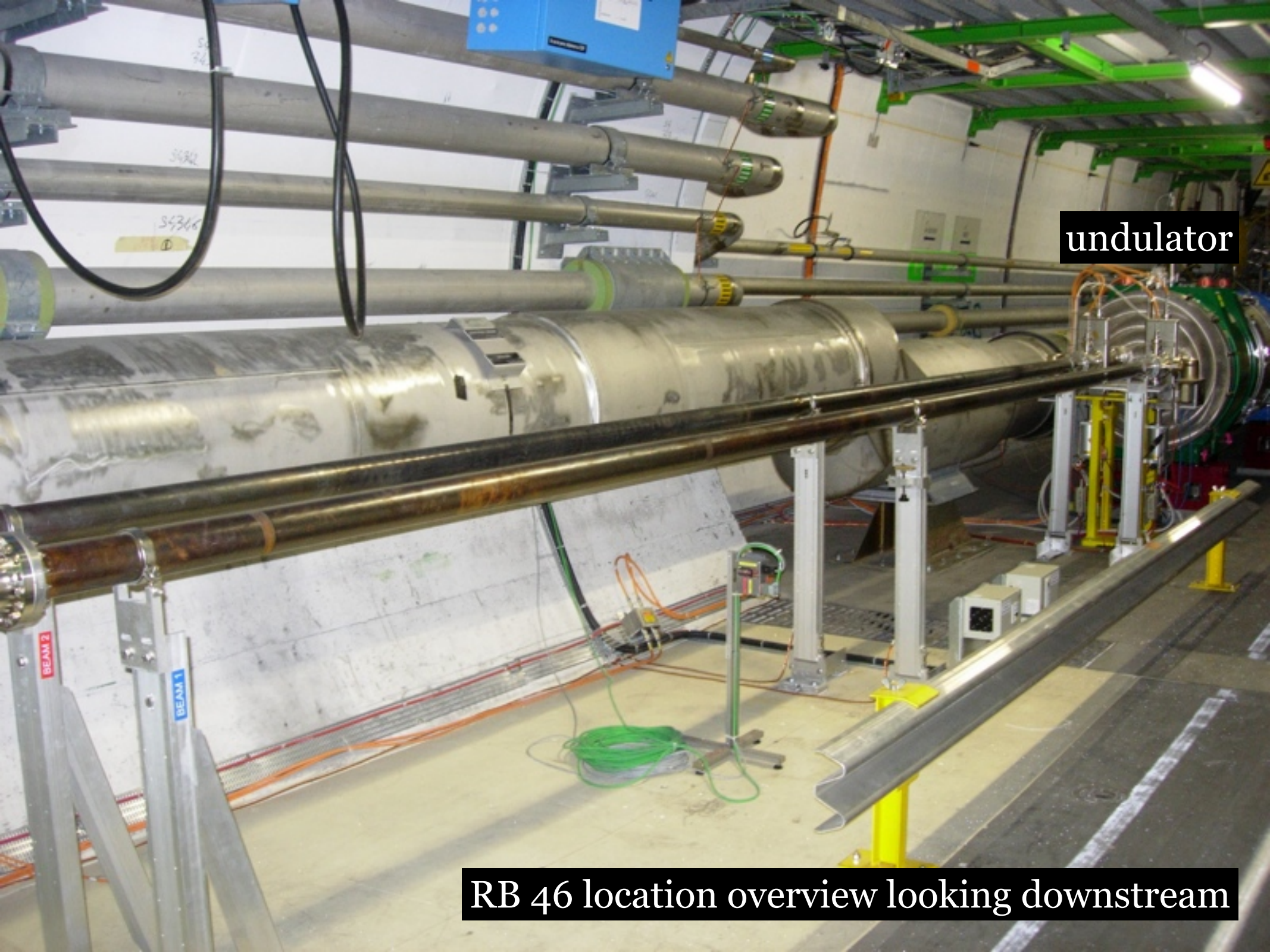

downstream end of RB 44 location


plenty of space above grate ceiling


RB 46 location, ~40 m right/downstream of IR4

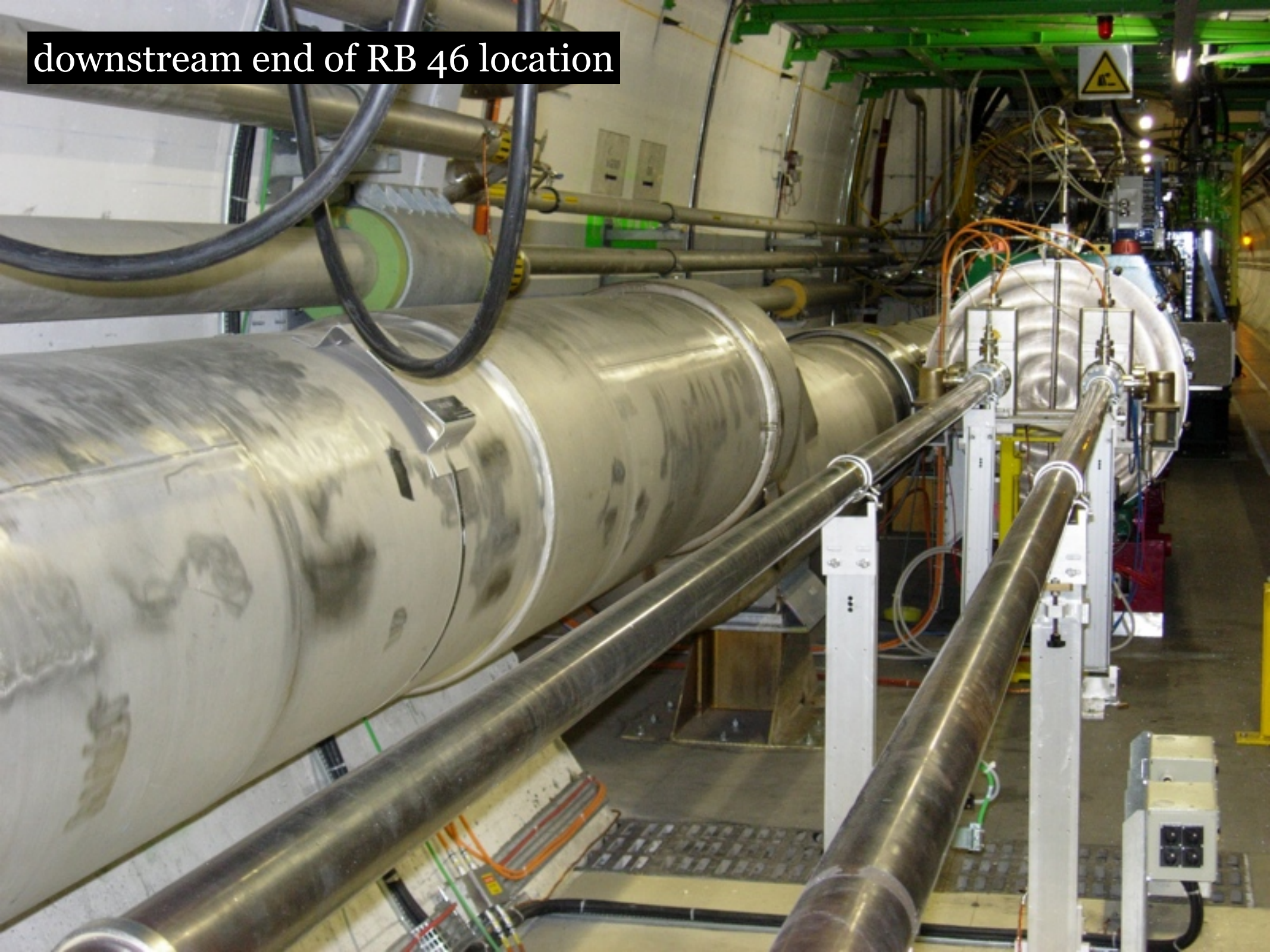


RB 46 location overview looking upstream




RB 46 location overview looking downstream


upstream end of RB 46 location


downstream end of RB 46 location


plenty of space above grate ceiling


closest magnet to rf cavities at RB 46

Comments:

- abundant space longitudinally and vertically
- very tight transverse space
- beam axis separation is 42 cm
- beam pipe height
- cryogenics available with substantial work
- technical contacts for integration (EN-MEF-INT): J.-P. Corso, Y. Muttoni